DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMITTING and COMPLIANCE DIVISION
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

Statement of Basis

Permittee:	City of Chinook
Permit No.:	MT0030473
Receiving Water:	Milk River
Facility Information:	
Name	City of Chinook Water Treatment Plant
Location	Blaine County Latitude 48º34'47"N, Longitude 109º13'55"W
Facility Contact:	Cory Fox, Water Superintendent PO Box 1177 Chinook, MT 59523 (406) 357-2120
Fee Information:	
Number of Outfalls	1
Outfall – Type	001-Process Water

I. Permit Status

This permit is a renewal of the Montana Pollutant Discharge Elimination System (MPDES) permit for the City of Chinook domestic potable water treatment plant. The previous permit was issued February 1, 2000 and expired April 30, 2004. The permittee submitted fees on May 17, 2004 and a renewal application on June 28, 2004. After a deficiency letter was sent on August 26, 2004, the permittee resubmitted the renewal application on November 4, 2004. The application (Forms 1 & 2A) was deemed complete by the Montana Department of Environmental Quality (Department) on November 21, 2004.

II. Facility Information

A. Facility Description

The Chinook Water Treatment Plant (Chinook WTP) is a conventional potable water treatment plant serving approximately 1,500 residents. It is certified through the Department's Public Water Supply (PWS) program under PWSID #MT0000174.

Water from the Milk River is diverted into a wet well before being pumped into the plant (Figure 1). The raw water is first treated by in-line rapid mix where polymers and aluminum sulfate [$Al_2(SO_4)_3$] are added. The water flows to a two-stage flocculation tank, followed by a sedimentation tank, and finally a multi-media filter. Chlorine gas is then added before the water flows into a small well followed by a large well to extend contact time. The finished water is pumped to one of two storage tank reservoirs for distribution through the public water supply system.

The original water treatment facility was constructed in the early 1970's. A public water system upgrade completed in 1999 included the addition of a 220,000-gallon finished water reservoir, new chlorine, activated carbon, and alum feed systems, plant automation, water main replacement, and various equipment improvements [Chinook Public Water System Source Water Delineation and Assessment Report, May 17, 2000 (Chinook PWS Report)]. The facility currently treats approximately 0.8 million gallons per day (mgd) of raw water in the summer and approximately 0.3 mgd in the winter (discussion with Cory Fox, Chinook Water Superintendent, November 2008). It was designed to produce 1100 gal/min (1.6 mgd), although the highest water production has been 900 gal/min (1.3 mgd) in the summer.

Approximately 10% of the incoming raw water becomes wastewater, which is made up of chlorinated backwash and filter-to-waste water (a discharge of the filtered water for a period of time while the filter settles and "cures"). The wastewater is discharged into one of two 270,000-gallon settling ponds (capacity

estimated by Chinook Water Superintendent, November 2008). It is unknown whether the ponds are lined or not – after the sludge is removed the bottom and sides feel solid and may be clay-lined (Chinook Water Superintendent, December 2008).

The permittee removes the sludge from one of the two ponds every summer. Approximately 140 cubic yards of sludge is removed from the ponds each year and disposed of at the Unified Disposal Landfill (Chinook Water Superintendent, November 2008).

The clarified effluent is continuously discharged from the settling ponds to the Milk River through Outfall 001 (submerged outlet). Prior to installing this discharge line in late 2003, the clarified effluent had been recycled from the ponds back into the water treatment plant.

There is a totalizing flow meter (Badger magnetic flow meter) in a manhole on Outfall 001 prior to discharge to the Milk River. According to Chinook Water Superintendent Cory Fox (personal communication, November 2008), this meter appears to record a higher flow than actually discharged (at least in the winter months) based on comparison with the facility's water production records. The plant does not have a weir, Parshall flume, or other primary flow measurement device. This permit will include a schedule for the facility to demonstrate compliance with the requirement to meter within ten percent of the actual flow.

According to water production records, the facility typically generates approximately 0.08 mgd filter backwash in the summer and an average of 0.03 mgd in the winter (discussion with Cory Fox, November 2008). The application stated that the discharge design flow rate was 0.6 mgd; however, based on the totalizing meter records reported as part of the Discharge Monitoring Reports (DMRs), the maximum daily flow during the period of record (POR) of April 2003 through September 2008 was 0.75 mgd. The highest 30-day average flow for the POR was 0.22 mgd.

B. Effluent Characteristics

Table 1 summarizes monthly self-monitoring effluent data for Outfall 001 for the POR of April 2003 through September 2008.

Table 1: Effluent Characteristics for the Period April 2003 through September 2008

Parameter	Location	Units	Previous Permit Limit	Minimum Value	Maximum Value	Average Value	Number of Samples
Flow, 30-Day Average	Effluent	mgd	NA (1,2)	0.06	0.22	0.12	64
Flow, Daily Maximum	Effluent	mgd	NA (1,2)	NA	0.75	0.18	64
Turbidity	Effluent	NTU	NA(1,4)	0	8.3	1.3	64
	In Stream	NTU	NA(1,4)	0.02	672	22.2	64
	Net Increase(6)	NTU	10	<10	<10	<10	0
Dissolved Aluminum	Effluent	mg/L	0.75 (4)	0.10	0.39	0.21	64
	Effluent	lbs/day	2.19 (2,3)	0.06	0.72	0.21	64
pH	Effluent	s.u.	6.0-9.0 (4)	--	--	--	0
Chlorine, Total Residual	Effluent	mg/L	0.02 – 0.08 (4,5)	0.04	0.14	0.07	64

Footnotes:
(1) NA = Not applicable.
(2) No limit in previous permit; monitoring requirement only. (Dissolved aluminum mass limit was based on SOB review.)
(3) 30-Day Average. POR values calculated by monthly dissolved aluminum results x average monthly flow x 8.34.
(4) Instantaneous Maximum.
(5) Limitation varies depending on flow.
(6) DMR's did not request this data. However, since effluent NTU is <10, the net increase in the stream is <10 NTU.

C. Compliance History

The discharge from Outfall 001 exceeded the 0.08 mg/L Total Residual Chlorine (TRC) permit limit 10 times during the POR. Of the 10 incidents, 9 occurred between September 2005 and May 2006. There has only been one exceedence since May 2006. The Department has not issued violation letters for these exceedences.

The Department conducted a compliance evaluation inspection of the WTP facility on February 22, 2005. No violations were noted during this inspection. A previous compliance evaluation inspection on June 12, 2002 resulted in a violation letter dated November 18, 2002 for the failure to properly operate and maintain all facilities and systems of treatment and control. The violations were resolved before the 2005 inspection.

III. Rationale for Proposed Technology-Based Effluent Limits

A. Scope and Authority

Technology-based effluent limits (TBELs) represent the minimum level of control that must be imposed by a permit issued under the MDPES program, as stated at 40 CFR 125.44(a) and adopted by reference in Administrative Rules of Montana (ARM) 17.30.1344(2)(b). The Department must consider technology available to treat wastewater, and limits that can be consistently achieved by that technology. TBELs are based on currently available treatment technologies and allow the permittee the discretion to choose applicable controls to meet those standards.

The Montana Board of Environmental Review (BER) has adopted performance standards for point source discharges to state waters under Title 17, Chapter 30, Subchapter 12 of the ARM. Under Subchapter 12, the BER adopted by reference 40 CFR Subpart N, which is a series of federal agency rules that adopt TBELs for existing sources and performance standards for new sources [ARM 17.30.1207(1)]. In addition, ARM 17.30.635(3) states that industrial waste must receive, as a minimum, treatment equivalent to the best practicable control technology currently available (BPCTCA) as defined in Subchapter N. However, National Effluent Limit Guidelines (ELG) have not been promulgated under Subchapter N for discharges of treated wastewater from potable water treatment plants.

The BER has also adopted general treatment requirements that establish the degree of wastewater treatment required to maintain and restore the quality of state surface waters. This rule states that in addition to federal ELGs, the degree of wastewater treatment is based on the surface water quality standards, the state's nondegradation policy, the quality and flow of the receiving water, the quantity and quality of sewage, industrial wastes and other wastes to be treated, and the presence or absence of other sources of pollution on the watershed [ARM 17.30.635(1)].

B. Proposed TBELs: Concentration-based Limits

The previous permit did not include any TBELs. However, total suspended solids (TSS) TBELs of 30 milligrams per liter (mg/L) (monthly average) and 45 mg/L (daily maximum) are commonly applied in WTP permits, including the following:

- Policy issued in 1977 by the US Environmental Protection Agency (EPA) Region VII (only known EPA policy);
- Science Applications International Corporation (SAIC) document entitled "*Model Permit Package – Water Supply Industry*," released January 30, 1987; and
- Four of the seven recently renewed MT WTP MPDES permits.

This MPDES permit will incorporate TSS limits of 30 mg/L monthly average and 45 mg/L daily maximum. These TSS effluent limits have been found to be technically achievable by similar industries. The Department recognizes that settling basins can effectively reduce TSS and turbidity from surface water at a low cost. Municipal lagoons are limited to 30 mg/L monthly average and 45 mg/L average weekly TSS effluent concentration limits [40 CFR 133.102].

C. Proposed TBELs: Mass-based Limits

ARM 17.30.1345(8) requires that all effluent limits be expressed in terms of mass, except when applicable standards and limits are expressed in terms of other units of measurement. Calculation of any permit limit which is based on production must be based on a reasonable measure of actual production of the facility that corresponds to the appropriate time period [ARM 17.30.1345(2)(b)(i)]. Because the Chinook WTP is not subject to an ELG or other production- or mass-based limitation, the development of mass-based effluent limits is not required.

D. Nondegradation Load Allocations

The provisions of ARM 17.30.701 - 718 (Nondegradation of Water Quality) apply to new or increased sources of pollution [ARM 17.30.702(18)]. Sources that are in compliance with the conditions of their permit and do not exceed the limits established in the permit or determined from a permit issued by the Department prior to April 29, 1993 are not considered new or increased sources. In addition, activities causing nonsignificant changes in existing water quality are not considered new or increased sources.

The Chinook WTP has not increased flow or undergone any modifications that would be considered a “new or increased source” since the previous permit was issued in 2000. Furthermore, the facility is in compliance with the conditions in the previous permit and has never exceeded a permit limit other than chlorine (which dissipates rapidly and would not be of concern for nondegradation).

The previous permit found the Chinook WTP effluent, in general, to be nonsignificant under ARM 17.30.715(3). However, a nondegradation load allocation for dissolved aluminum was calculated as part of the previous permit, based on a maximum discharge flow of 0.35 mgd (determined in calculating maximum daily TRC allowance) and a proposed permit limit of 0.75 mg/L for aluminum. The aluminum 30-day average load allocation was determined to be 2.19 lb/day. Although the Department would use 0.22 mgd flow to calculate the nondegradation baseline load if this allocation was developed today, the Chinook WTP has not increased flow or undergone any modification since the previous permit. Therefore, the Department will not revise the 2.19 lb/day determination.

The Department did not calculate a nondegradation baseline load allocation for TSS under the previous permit. Since Chinook WTP has not conducted any TSS monitoring, the baseline 30-day average and maximum daily TSS nondegradation load is calculated as follows:

30-day Average:

TSS Limit (lb/day) = 30-day average flow (mgd) x concentration limit (mg/L) x 8.34
Based on POR maximum 30-day average flow = 0.22 mgd

TSS 30-day average (lb/day) = 0.22 mgd x 30 mg/L x 8.34 = **55** lb/day

Daily Maximum:

TSS Limit (lb/day) = Daily max flow (mgd) x concentration limit (mg/L) x 8.34
Based on design daily maximum flow = 0.6 mgd

TSS daily maximum (lb/day) = 0.6 mgd x 45 mg/L x 8.34 = **225** lb/day

IV. Rationale for Proposed Water Quality-Based Effluent Limits (WQBEL)

A. Scope and Authority

Permits are required to include WQBEL when technology-based effluent limits are not adequate to protect state water quality standards (40 CFR 122.44 and ARM 17.30.1344). ARM 17.30.637(2) states that no wastes may be discharged that can reasonably be expected to violate any state water quality standards. Montana water quality standards (ARM 17.30.601-670) define both water use classifications for all state waters and numeric and narrative standards that protect those designated uses. New or increased sources, as defined in ARM 17.30.702(18), are subject to Montana Nondegradation Policy (75-5-303, MCA) and regulations (ARM 17.30.701-718).

B. Receiving Water

The receiving water, the Milk River, is classified as B-3 according to Montana Water Use Classifications, ARM 17.30.610(1)(h). Waters classified B-3 are to be maintained suitable for drinking, culinary, and food processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply (ARM 17.30.625).

The discharge location is in the 10050004 4th field HUC (hydraulic unit code), as defined by the United States Geological Survey (USGS). The discharge is to the reach of the Milk River (part of the Missouri River drainage) identified by

Montana steam segment MT40J001_010, defined as the reach from Fresno Dam to Whitewater Creek.

The Milk River 7-day 10-year low flow (7Q10) used for limits in this permit were based on data from the Lohman gaging site (USGS station 06143000), which was located approximately 8 miles upstream of the discharge. The Lohman gaging station was discontinued in 1952. Data from this station were used in Chinook's previous WTP permit and the 7Q10 was calculated as 5.7 cubic feet per second (cfs, 3.7 mgd). However, further evaluation performed for the Chinook Wastewater Treatment Facility (WWTF) MPDES permit renewal (#MT0020125, July 2006) concluded that data from before the completion of Fresno dam in 1939 should be eliminated, and the 7Q10 was recalculated based on DFLOW3 and used in Chinook WWTF. Since this WWTF is located immediately downstream from the WTP, the recalculated 7Q10 of 6.4 cfs (4.1 mgd) will be used for effluent limit calculations.

Data from the Lohman gaging station, taken from MPDES Permit #MT0020125, are summarized in Table 3.

Table 2. Receiving water data for the Milk River

Parameter	Long Term Average	Number of Samples	Minimum Value	Maximum Value	Data Source
Flow, cfs	280	8,131	0	3,290	(1)
Flow, mgd	181	--	0	2126	(1)
pH (winter), s.u.	8.0	87	6.9	8.4	(2)
pH (summer), s.u.	7.8	245	7.2	8.8	(2)

Sources:
(1) USGS gage 06154100, 1918-1951. Mgd converted from cfs.
(2) Chinook Water Treatment Plant, 2001-2005

The Milk River in the vicinity of the discharge is on both the 1996 and 2006 303(d) lists of impaired streams. Beneficial uses identified as impaired on the 1996 list are aquatic life, warm water fishery, and drinking water. Causes of impairment were identified as other organics, nutrients, salinity/total dissolved solids (TDS)/chlorides, flow alteration, other habitat alteration and suspended solids. Probable sources of impairment included municipal point sources.

The 2006 303(d) list identifies the Milk River as not supporting drinking water uses and fully supporting its agricultural and industrial beneficial uses. Aquatic life, warm water fishery, and contact recreation were not assessed. The probable cause of impairment is mercury and the probable sources are agriculture, dam or impoundment(s), and natural sources.

To date, a total maximum daily load (TMDL) has not been prepared for this segment of the Milk River.

C. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)]. A mixing zone must be of the smallest practicable size, have a minimum effect on water uses, and have definable boundaries [MCA 75-5-301(4)]. Acute standards for any parameter may not be exceeded in any portion of the mixing zone unless the Department specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses [ARM 17.30.507(1)(b)].

The Department must determine the applicability of a mixing zone [ARM 17.30.505(1)]. A standard mixing zone may be granted for facilities which discharge a mean annual flow less than one mgd to a stream segment with a dilution ratio less than 100:1 [ARM 17.30.516(3)(b)]. The mean average flow from Chinook WTP is less than one mgd, and the dilution ratio with the Milk River is 19:1 (4.1 mgd 7Q10 stream flow / 0.22 mgd maximum 30-day average discharge).

In accordance with standard mixing zone procedures [ARM 17.30.516(4)], the length of a standard mixing zone must not extend downstream more than the most restrictive of:

- One-half mixing width distance; or
- Ten times the stream width.

Any previously allowed mixing zone will remain designated in a renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses [ARM 17.30.505(1)(c)]. The Department defined a standard mixing zone in the previous permit at 10 times the stream width. However, no specific distance was included. The Milk River is approximately 100 feet wide at the Chinook WTP, based on review of a 2005 aerial photograph [DEQ Air Quality Mapping Tool]. Actual mixing width data is not available; therefore, the standard mixing zone will remain at 10 times the stream width, or 1,000 feet downstream from the discharge location.

Since the mean average flow from the Chinook WTP is less than one mgd, and the dilution ratio with the Milk River is less than 100:1, discharge limits are based on dilution with 25% of the 7Q10 [ARM 17.30.516(3)(b)]. The previous permit calculated the dilution flow to be 0.92 mgd. However, since the 7Q10 was adjusted slightly upwards for this permit renewal, the recalculated dilution flow is 1.03 mgd (=1.59 cfs). This mixing zone will apply only to chronic parameters.

ARM 17.30.507(1)(b) requires that acute standards for aquatic life may not be exceeded in any portion of the mixing zone unless the department finds that allowing minimal initial dilution will not threaten or impair beneficial uses. Beneficial uses are considered to be protected if the discharge does not block

passage of aquatic organisms or cause acutely lethality to aquatic organisms passing through the mixing zone. In the absence of site-specific data, the Department limits the acute dilution to 1% of the 7Q10 for parameters such as chlorine, ammonia and dissolved oxygen for existing facilities with incomplete mixed discharges, such as the Chinook WWTP.

D. Applicable Water Quality Standards and Proposed WQBEL/Waste Load Allocation (WLA)

Discharges to surface waters classified B-3 are subject to the specific water quality standards of ARM 17.30.625 (March 31, 2006), Department Circular DEQ-7 (February 2008), as well as the general provision of ARM 17.30.635 through 637. In addition to these standards, dischargers are also subject to ARM 17.30 Subchapter 5 (Mixing Zones, March 2006) and Subchapter 7 (Nondegradation of Water Quality, March 2006).

Pollutants typically present at potable water treatment plants that may cause or contribute to a violation of water quality standards include conventional pollutants such as TSS and pH, non-conventional pollutants such as turbidity, and toxics such as TRC and dissolved aluminum**.**

Effluent limits are required for all pollutants which demonstrate a reasonable potential to exceed numeric or narrative standards. The Department uses a mass balance equation to determine reasonable potential based on *EPA Technical Support Document for Water Quality based Toxics Control (TSD) (EPA/505/2-90-001)* Input parameters are based on receiving water concentration, maximum projected effluent concentration and design flow of the wastewater treatment facility, and the applicable receiving water flow.

1. Conventional Pollutants

The TBEL identified in Part III is sufficient to limit TSS. No additional WQBEL will be required for this parameter.

The previous permit limited the effluent pH to 6.0 – 9.0 s.u., based on Best Professional Judgment. No additional WQBEL will be required for pH, since this TBEL is protective of the receiving water quality. The pH limit will remain 6.0 - 9.0 s.u. in this renewed permit.

2. Non-conventional Pollutants

Turbidity is a non-conventional pollutant from the Chinook WTP. It is unknown if other non-conventional pollutants, such as total dissolved solids or low dissolved oxygen, are discharged from the WTP because monitoring data was not

supplied as part of this application. Monitoring for these and other pollutants will be required as a condition of this permit.

The maximum increase above naturally occurring turbidity in this permit renewal will continue to be 10 nephelometric turbidity units (NTU) based on the water quality standards for Class B-3 water [ARM 17.30.625(2)(d)]. The previous permit required daily turbidity monitoring of the effluent and in-stream monitoring upstream from the Chinook WTP discharge. Review of the DMR data shows that the WTP turbidity remained within limits for the POR.

Since the proposed TSS TBELs are assumed to be protective and to control turbidity levels in the wastewater, this permit will remove the turbidity monitoring requirement.

3. Toxic Pollutants

As previously stated, the Department uses a mass balance equation to determine Reasonable Potential (RP) based on the TSD. The mass balance equation to determine RP is presented in Equation 1.

$$C_{RP} = \frac{C_E Q_E + C_S Q_S}{Q_E + Q_S} \qquad \textbf{(Equation 1)}$$

Where:

C_{RP} = receiving water concentration after mixing, mg/L
C_E = projected maximum effluent concentration, mg/L
C_S = receiving water concentration upstream of discharge, mg/L
Q_S = applicable receiving water flow, cfs
Q_E = facility design flow rate, cfs

C_E = Maximum Observed * RP Multiplier (TSD Table 3-2)

The result (C_{RP}) is compared to the water quality-based standard. If C_{RP} exceeds the standard values, RP is shown to exist and an effluent limit must be calculated using the mass balance equation (Equation 2)

$$EL = \frac{C_{stnd}(Q_s + Q_e) - Q_s C_s}{Q_e} \qquad \textbf{(Equation 2)}$$

Where:

EL = calculated effluent limit, mg/L
C_{stnd} = applicable standard, mg/L
Q_s = applicable receiving water flow, cfs
Q_e = facility design flow rate, cfs
C_s = receiving water concentration upstream of discharge, mg/L

Total Residual Chlorine (TRC) – The TRC concentration limit in the previous permit ranged from 0.02 – 0.08 mg/L, depending on the maximum discharge flow rate.

The acute water quality standard for TRC is 0.019 mg/L [DEQ-7, February 2008]. Since chlorine dissipates rapidly, the background concentration of TRC in the Milk River is assumed to be 0.00 mg/L. The RP value is calculated to be 0.15 based on Equation 1 (= 0.14 mg/L maximum TRC concentration during POR x 1.1). An acute TRC effluent limit will be developed with this renewal, since reasonable potential exists to exceed the acute water quality standard in the Milk River.

The chronic water quality standard for TRC is 0.011 mg/L [DEQ-7]. As stated in the previous paragraph, chlorine dissipates rapidly so there is assumed to be no background concentration of chlorine. The RP value is calculated to be 0.08 mg/L based on Equation 1 (= 0.07 mg/L maximum monthly TRC concentration x 1.1). A chronic TRC effluent limit will be developed with this renewal, since reasonable potential exists to exceed the chronic water quality standard in the Milk River.

Attachment 1 presents the acute and chronic TRC effluent limits. Based on the dilution flow of 0.064 cfs (1% of the 7Q10), the proposed daily maximum TRC acute limit is 0.02 mg/L. Based on the dilution flow of 1.6 cfs (25% of the 7Q10), the proposed monthly average chronic TRC limit is 0.017 mg/L. Both of these limits will apply at end of pipe.

Analytical methods in 40 CFR Part 136 requires chlorine samples to be analyzed immediately. On-site analysis for TRC using an approved method is required. The method must obtain a minimum detection level of 0.1 mg/L. Analytical results of less than 0.1 mg/L will be considered to be in compliance with the limits.

Dissolved Aluminum – Dissolved aluminum is a toxic parameter with standards applicable to surface waters with a pH between 6.5 and 9.0 s.u. [DEQ-7, February 2008].

The acute water quality standard for dissolved aluminum is 0.75 mg/L [DEQ-7]. This was the limit in the previous permit. The maximum daily dissolved aluminum concentration for the POR was 0.39 mg/L.

The chronic water quality standard for dissolved aluminum is 0.087 mg/L [DEQ-7]. There was no chronic limit in the previous permit. The average dissolved aluminum concentration for the POR was 0.21 mg/L.

Reasonable potential for dissolved aluminum can be assumed to exist, based on the maximum and average analysis for the POR. However, calculating RP and the appropriate effluent limits using Equations 1 and 2 requires data on the receiving water dissolved aluminum concentration. There are limited data available for the Milk River. The only analysis found, taken near Glasgow in 1972, showed 0.0 micrograms per liter (µg/L) aluminum (no detection limit was provided).

Therefore, the Department has determined that upstream monitoring of the receiving water for dissolved aluminum will be required during this permit cycle. This will provide the basis for developing acute and chronic limits for dissolved aluminum in the next permit cycle. For this permit renewal, the existing limit of 0.75 mg/L will remain as the acute limit at the end of pipe.

V. Final Effluent Limits

A. Interim Effluent Limits for Outfall 001

Interim effluent limits for Outfall 001 in Table 3 are effective from the effective date of the permit through May 31, 2010, after which time the final effluent limits in Table 4 apply.

Table 3: Interim Effluent Limits for Outfall 001 (through May 31, 2010)

Proposed Interim Effluent Limits[1]				
Parameter	Units	Sampling Location	Average Monthly Limit	Maximum Daily Limit
TSS	mg/L	Effluent	30	45
TRC	mg/L	Effluent	0.08	0.08
Dissolved Aluminum[2, 3]	mg/L	Effluent	--	0.75

Footnotes:
1. See Definition section at end of permit for explanation of terms.
2. Aluminum limit is applicable between 6.5 to 9.0 pH.
3. Upstream monitoring for aluminum will be required for this permit cycle in order to provide data for developing the aluminum chronic limit in the next permit cycle.

Effluent pH shall remain between 6.0 and 9.0. For compliance purposes, any single analysis and/or measurement beyond this limit shall be considered a violation of the conditions of this permit.

B. Final Effluent Limits for Outfall 001

Final effluent limits for Outfall 001 in Table 4 are effective from June 1, 2010 through the end of the permit term.

Table 4: Proposed Final Effluent Limits (June 1, 2010 through end of Permit Term)

Proposed Final Effluent Limits[1]				
Parameter	Units	Sampling Location	Average Monthly Limit	Maximum Daily Limit
TSS	mg/L	Effluent	30	45
TRC	mg/L	Effluent	0.017	0.020
Dissolved Aluminum[2, 3]	mg/L	Effluent	--	0.75

Footnotes:
1. See Definition section at end of permit for explanation of terms.
2. Aluminum limit is applicable between 6.5 to 9.0 pH.
3. Upstream monitoring for aluminum will be required for this permit cycle in order to provide data for developing the aluminum chronic limit in the next permit cycle.

Effluent pH shall remain between 6.0 and 9.0. For compliance purposes, any single analysis and/or measurement beyond this limit shall be considered a violation of the conditions of this permit.

VI. Monitoring Requirements

A. Monitoring of the effluent must be representative of the discharge. The effluent sample must be obtained from the discharge pipe after the settling ponds, before the wastewater enters the Milk River.

Effluent Monitoring Requirements			
Parameter	**Unit**	**Frequency of Analyses**	**Sample Type**
Flow	mgd	Continuous	Instantaneous
TSS	mg/L	1/Week	Grab
Dissolved Aluminum	mg/L	1/Week	Grab
TRC	mg/L	1/Day	Grab
pH	s.u.	1/Week	Instantaneous
Total Dissolved Solids (TDS)	mg/L	1/Quarter(1)	Grab

Footnote:
(1) Quarterly Samples required during calendar years 2010, 2011, and 2012 of this permit cycle, only.

Analytical methods in 40 CFR 136 requires TRC samples to be analyzed immediately. On-site analysis for TRC using an approved method is required. The method must achieve a minimum detection level of 0.1 mg/L. An effluent sample with an analytical result less than 0.1 mg/L is considered in compliance with the TRC limit.

Quarterly monitoring of TDS will be required for three years of the five-year permit cycle (2010, 2011, and 2012). The information from this analysis will be used to assess RP for the next permit renewal.

B. Additional Monitoring Requirements

In addition to the effluent monitoring required in VI.A. (above), the permittee shall conduct quarterly monitoring of aluminum levels in the Milk River, upstream from the discharge point. This information will provide the receiving water data required to complete Equations 1 and 2 to determine RP and effluent limits for aluminum.

Upstream Monitoring Requirements			
Parameter	**Unit**	**Frequency of Analyses**	**Sample Type**
Dissolved Aluminum	mg/L	1/Quarter(1)	Grab
Footnote: (1) Quarterly Samples required during calendar years 2010, 2011, and 2012 of this permit cycle, only.			

Quarterly monitoring of dissolved aluminum upstream from the outfall will be required for three years of the five-year permit cycle (2010, 2011, and 2012). The information from this analysis will be used to assess RP for the next permit renewal.

VII. Special Conditions/Compliance Schedules

Part II.B of the MPDES permit states that all flow measuring and flow recording devices used in obtaining data for self-monitoring reports must indicate values within 10 percent of actual flow being measured. Based on conversation with the Chinook Water Superintendent in November 2008 and observations made during the Department's December 9, 2008 permitting inspection, the facility has not demonstrated that they can accurately monitor effluent flow within 10% as required.

ARM 17.30.1342(8) requires that the permittee furnish to the Department, within a reasonable time, any information to determine compliance with this permit. ARM 17.30.1342(10) requires that samples and measurements must be representative of the monitored activity. In addition, 75-5-602, MCA provides that the Department may require the owner/operator of any point source to install, use and maintain monitoring equipment, and to provide this information as may be reasonably required by the Department.

The following conditions must be met within the given timeframe:

A. The permittee shall develop a work plan to:

i) Demonstrate that the facility accurately monitors the volume of effluent discharged from the plant. The plan may include installation of a primary flow measuring device such as a weir or flume, or calibration of the existing magnetic meter with sufficient testing against another flow measuring method or device to demonstrate that the meter consistently indicates flow values within ten percent of the actual flow being measured; and

ii) Implement dechlorination of the backwash prior to discharge into the Milk River.

The permittee shall submit a copy of the proposed plan to the Department as soon as possible, but no later than six (6) months from the effective date of this permit.

B. The Department will review the work plan, and provide approval or recommendations, within 30 days from receipt of the work plan.

C. The permittee shall implement the plan within five (5) months after receiving Department review and approval. Within 30 days of implementation, the permittee shall inform the Department of:

i) The method of demonstrating accurate measurement of discharge flow;

ii) The method of dechlorination; and

iii) The dates the above projects were completed.

VIII. Other Information

On September 21, 2000, a US District Judge Molloy issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued under the lawsuit Friends of the Wild Swan vs. US EPA *et al*, CV 97-35-M-DWM, District of Montana, Missoula Division.

The renewal of this permit does not conflict with Judge Molloy's order because the permitted discharge does not represent a new or increased source of pollutants.

IX. Information Sources

Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387, October 18, 1972, as amended 1973-1983, 1987, 1988, 1990-1992, 1994, 1995 and 1996.

US Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, & 136.

Montana Code Annotated (MCA), Title 75-5-101 *et seq*., "Montana Water Quality Act," 2003.

Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
Subchapter 2 - Water Quality Permit and Application Fees, December 2006.
Subchapter 5 - Mixing Zones in Surface and Ground Water, March, 2006.
Subchapter 6 - Montana Surface Water Quality Standards and Procedures, March 2006.
Subchapter 7- Nondegradation of Water Quality, March 2006.
Subchapter 12 - Montana Pollutant Discharge Elimination System (MPDES) Standards, March 2007.
Subchapter 13 - MPDES Permits, March 2006.

Montana Department of Environmental Quality Circular DEQ-7, Montana Numeric Water Quality Standards, February 2008

MPDES Permit Number MT0030473:
Administrative Record.
Renewal Application EPA Forms 1 and 2A, 2004.

MPDES Permit Number MT0020125 (Chinook Wastewater Treatment Plant) July 2006

Chinook Public Water System Source Water Delineation and Assessment Report May 17, 2000

2006 Integrated 303(d)/305(b) Water Quality Report for Montana December 2006

US Department of the Interior Geological Survey, Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002, Scientific Investigations Report 2004-5266, 2004.

US EPA *Technical Support Document for Water Quality-Based Toxics Control*, EPA/505/2-30-001, March 1991.

US EPA National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual, EPA 833-B-96-003, December 1996.

Washington State NPDES General Permit for Water Treatment Plants –Fact Sheet, June 16, 2004.

US EPA Region VII Policy, "*BPT Water Treatment Plants*," From Ronald D. McCutcheon, February 24, 1977.

Federal Register notice dated November 15, 2000 (Volume 65, Number 221)

Prepared by: Christine A. Weaver
Date: October 30, 2008

Figure 1: Flow diagram for Chinook Water Treatment Plant.